

ASSESSMENT ON THE SUITABILITY OF LIMESTONE
AS ALTERNATIVE COMPONENT TO WASHED SAND
IN PORTLAND CEMENT CONCRETE PAVEMENT

A Special Research Paper
Presented to
The Faculty of the School of Graduate Studies
Central Philippine University

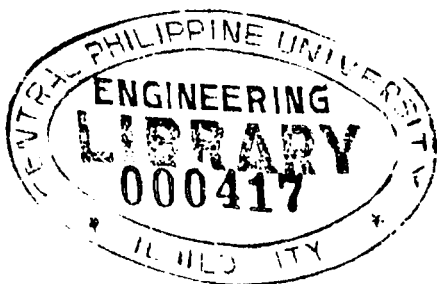
In Partial Fulfillment
of the Requirements for the Degree
Master of Engineering

GRADUATE STUDIES
LIBRARY

by

Ma. Fe G. Gamosa - Hojilla

March 2001



I. INTRODUCTION

In view of the rapid and accelerated development in infrastructure projects like roads, bridges, buildings, ports and waterworks, the adequacy of aggregates as construction materials is a great problem and concern since the quarry sources are getting exhausted.

Fast-developing communities where one major aspect of development is in terms of Infrastructure Program are experiencing this problem. Particular example is Guimaras Province where the author is presently working.

To resolve the problem of inadequacy of resources, agencies concerned through their technical personnel tried to look for possible solution of using indigenous materials abundant in the locality as alternative to scarce supply of aggregates.

Considering that Guimaras has abundant supply of limestone (white rocks), it was innovated that the said material be adopted as an alternative to river source aggregates. In fact, the Department of Public Works and Highways and local government engineering offices have been using the limestone instead of river source aggregates particularly for Item 104 - Embankment, Item

200 - Aggregate Sub base Course and Item 201 - Aggregate Base Course, either in 100 percent quantity or blended with river source aggregates to a certain percentage.

It came across to the idea of the author to conduct a study on the suitability of limestone as an alternative component to fine aggregate for use in low strength Portland cement concrete, particularly for Item 311 - Portland Cement Concrete Pavement (PCCP).

Statement of the Problem

This study attempted to assess the suitability of limestone as alternative component to washed sand in a plain concrete mixture, considering all other factors to be constant.

Specifically this study sought to answer the following questions:

1. Is there any significant difference between the flexural strength of beam sample using washed sand and beam sample using limestone?
2. Is limestone suitable for use as alternative component to fine aggregate (washed sand) in a plain

concrete mixture, particularly in Item 311 - Portland
Cement Concrete Pavement (PCCP)?